

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

Claims 1-3 (Canceled)

4. (Currently Amended) A direct conversion transmitter ~~comprising~~ comprising:  
signal means providing an input signal at a baseband frequency;  
a square root circuit ~~for receiving the input signal and~~ providing a modulation  
input signal for a modulator at a square root of the input signal at the baseband frequency;  
a ~~the~~ modulator modulating the output of the square root circuit, ~~said the~~  
modulator ~~comprising a local oscillator providing operating on a~~ modulation frequency of  
one half RF, where RF is ~~the a~~ a transmission frequency of the direct conversion  
transmitter, to convert the input signal to one half RF;  
a variable gain amplifier ~~for a gain applied~~ coupled to the output of ~~said the~~  
modulator;  
a squaring circuit ~~for coupled to an output of the variable gain amplifier and~~  
squaring the modulated signal to convert the output of the variable gain amplifier to the  
transmission frequency; and  
gain control means for providing dynamic range in the ~~radio~~ transmission  
frequency, ~~said the~~ gain control means providing an output for ~~a~~ coupling to a  
transmission antenna.

5. (Currently Amended) The transmitter according to claim 4 wherein ~~said the~~  
signal means provides an in-phase signal and quadrature signal for modulation and wherein ~~said~~  
the modulator comprises a Gilbert cell modulator.

6. (Currently Amended) The transmitter of claim 5 wherein ~~said the~~ circuit is  
comprised in a digital signal processor receiving the input signals.

7. (Currently Amended) The transmitter of claim 5 wherein said ~~the~~ square root circuit comprises an analog circuit.

8. (Currently Amended) The transmitter of claim 6 wherein said ~~the~~ squaring circuit comprises a Gilbert multiplier.

Claims 9-13 (Canceled)

14. (New) A direct conversion transmitter comprising:  
signal means providing an input signal at a baseband frequency;  
a square root circuit receiving the input signal and providing a modulation input signal for a modulator at a square root of the input signal at the baseband frequency;  
the modulator modulating the output of the square root circuit, the modulator operating on a modulation frequency of one half RF, where RF is a transmission frequency of the direct conversion transmitter, to convert the input signal to one half RF;  
a squaring circuit coupled to an output of the modulator and squaring the modulated signal to convert the output of the modulator to the transmit frequency; and  
gain control means for providing dynamic range in the transmission frequency, the gain control means providing an output for coupling to a transmission antenna.

15. (New) The transmitter according to claim 14 wherein the signal means provides an in-phase signal and quadrature signal for modulation and wherein the modulator comprises a Gilbert cell modulator.

16. (New) The transmitter of claim 15 wherein the square root circuit is comprised in a digital signal processor receiving the input signals.

17. (New) The transmitter of claim 16 wherein the squaring circuit comprises a Gilbert multiplier.

18. (New) The transmitter of claim 15 wherein the square root circuit comprises an analog circuit.